

WHAT IS CLAIMED IS:

1. A method for producing a lithographic printing plate system, comprising the steps of:

a) providing a plate that is capable of receiving an image to be reproduced and comprises a first composition that comprises at least one anionic compound;

b) transferring an image to be reproduced onto said plate with the aid of a second composition and of an inkjet device, wherein said second composition comprises at least one cationic compound.

2. The method according to claim 1, wherein said plate comprises:

-- said first composition, which comprises:

at least one water-soluble polymer;

at least one inorganic pigment and

at least one initiator, wherein said initiator comprises at least one anionic compound;

-- a support capable of binding said first composition.

3. The method according to claim 1, comprising after step b) an additional step of rendering said image recorded on the plate system permanent by way of a fixing treatment, said fixing depending on the type of said second composition that is used.

4. The method according to claim 3, wherein said fixing comprises a step of photofixing with UVA and/or UVB light.

5. A first composition for lithographic printing, comprising:

-- at least one water-soluble polymer;

-- at least one inorganic pigment and

-- at least one initiator, wherein said initiator comprises at least one anionic compound.

6. A plate for lithographic printing, comprising:

-- a first composition, which comprises:

-- at least one water-soluble polymer;

- at least one inorganic pigment and
- at least one initiator, wherein said initiator comprises at least one anionic compound;

-- a support capable of binding said first composition.

5        7. The plate according to claim 6, wherein said support is selected from the group consisting of electrograined-anodized aluminum, paper-like material and plastic material.

8. The plate according to claim 7, wherein said plastic material is selected from the group consisting of cellulose triacetate, nitrocellulose,  
10 polystyrene, polyvinyl chloride, polyvinylidene chloride, polythene, high-density polyethylene, high-density polypropylene, polyarylsulfone, polyarylamide, polyarylimide, polyethylene terephthalate, polystyrene and mixtures thereof.

9. The method according to claim 1, wherein said first composition  
15 further comprises at least one of the following ingredients:

- i) at least one water-dispersible polymer,
- ii) at least one crosslinking agent,
- iii) at least one catalyst of the crosslinking process,
- iv) at least one surfactant;
- 20 v) at least one product that improves the degree of reproduction of images and characters.

10. The first composition according to claim 5, further comprising at least one of the following ingredients:

- i) at least one water-dispersible polymer,
- 25 ii) at least one crosslinking agent,
- iii) at least one catalyst of the crosslinking process,
- iv) at least one surfactant;
- v) at least one product that improves the degree of reproduction of images and characters.

30        11. The plate according to claim 6, wherein said first composition

further comprises at least one of the following ingredients:

- i) at least one water-dispersible polymer,
- ii) at least one crosslinking agent,
- iii) at least one catalyst of the crosslinking process,
- 5 iv) at least one surfactant;
- v) at least one product that improves the degree of reproduction of images and characters.

12. The method according to claim 1, wherein said water-soluble polymer is selected from the group consisting of carboxymethylcellulose, hydroxymethylcellulose, hydroxyethylcellulose, hydroxypropylcellulose, alginates and alginic acids, polyvinylpyrrolidone, polyvinylpyrrolidone-vinyl acetate copolymers, polyvinyl alcohol-polyvinyl acetate copolymers, polyacrylic acids, polyacrylamides, polyacrylic and methacrylic acids, maleic-acrylic copolymers, ethylene-maleic anhydride copolymers, at least one polyvinyl alcohol with a degree of hydrolysis comprised between 45 and 100% and with a molecular weight comprised between 60,000 and 220,000 units.

13. The first composition according to claim 5, wherein said water-soluble polymer is selected from the group consisting of carboxymethylcellulose, hydroxymethylcellulose, hydroxyethylcellulose, hydroxypropylcellulose, alginates and alginic acids, polyvinylpyrrolidone, polyvinylpyrrolidone-vinyl acetate copolymers, polyvinyl alcohol-polyvinyl acetate copolymers, polyacrylic acids, polyacrylamides, polyacrylic and methacrylic acids, maleic-acrylic copolymers, ethylene-maleic anhydride copolymers, at least one polyvinyl alcohol with a degree of hydrolysis comprised between 45 and 100% and with a molecular weight comprised between 60,000 and 220,000 units.

14. The plate according to claim 6, wherein said water-soluble polymer is selected from the group consisting of carboxymethylcellulose, hydroxymethylcellulose, hydroxyethylcellulose, hydroxypropylcellulose,

alginates and alginic acids, polyvinylpyrrolidone, polyvinylpyrrolidone-vinyl acetate copolymers, polyvinyl alcohol-polyvinyl acetate copolymers, polyacrylic acids, polyacrylamides, polyacrylic and methacrylic acids, maleic-acrylic copolymers, ethylene-maleic anhydride copolymers, at least  
5 one polyvinyl alcohol with a degree of hydrolysis comprised between 45 and 100% and with a molecular weight comprised between 60,000 and 220,000 units.

15 15. The method according to claim 1, wherein said at least one water-soluble polymer is present in 0.25 to 150 parts by weight per 100 parts by weight of said inorganic pigment.

16. The first composition according to claim 5, wherein said at least one water-soluble polymer is present in 0.25 to 150 parts by weight per 100 parts by weight of said inorganic pigment.

15 17. The plate according to claim 6, wherein said at least one water-soluble polymer is present in 0.25 to 150 parts by weight per 100 parts by weight of said inorganic pigment.

18. The method according to claim 1, wherein said inorganic pigment is selected from the group consisting of titanium dioxide, zinc oxides, aluminum oxides, alumina, lead dioxide, selenium dioxide, calcium  
20 carbonate, magnesium carbonate, kaolin and bentonite.

19. The first composition according to claim 5, wherein said inorganic pigment is selected from the group consisting of titanium dioxide, zinc oxides, aluminum oxides, alumina, lead dioxide, selenium dioxide, calcium carbonate, magnesium carbonate, kaolin and bentonite.

25 20. The plate according to claim 6, wherein said inorganic pigment is selected from the group consisting of titanium dioxide, zinc oxides, aluminum oxides, alumina, lead dioxide, selenium dioxide, calcium carbonate, magnesium carbonate, kaolin and bentonite.

21. The method according to claim 1, wherein said anionic compound  
30 is selected independently from one of the following groups that consist of:

a) carboxymethylcellulose, polyacrylic acids, polyacrylic and methacrylic acids, maleic-acrylic copolymers, ethylene-maleic anhydride copolymers;

5 b) sodium salts of salicylic acid, phthalic acid, terephthalic acid, isophthalic acid, trimellitic acid, pyromellitic acid, sulfosalicylic acid, sulfoisophthalic acid, 2-hydroxy-4-methoxybenzophenone-5-sulfonic acid, 2-hydroxy-3-methoxybenzoic acid, 2-hydroxy-5-methoxybenzoic acid, and 4-hydroxy-3-methoxybenzoic acid.

22. The first composition according to claim 5, wherein said anionic  
10 compound is selected independently from one of the following groups that consist of:

a) carboxymethylcellulose, polyacrylic acids, polyacrylic and methacrylic acids, maleic-acrylic copolymers, ethylene-maleic anhydride copolymers;

15 b) sodium salts of salicylic acid, phthalic acid, terephthalic acid, isophthalic acid, trimellitic acid, pyromellitic acid, sulfosalicylic acid, sulfoisophthalic acid, 2-hydroxy-4-methoxybenzophenone-5-sulfonic acid, 2-hydroxy-3-methoxybenzoic acid, 2-hydroxy-5-methoxybenzoic acid, and 4-hydroxy-3-methoxybenzoic acid.

20 23. The plate according to claim 6, wherein said anionic compound is selected independently from one of the following groups that consist of:

a) carboxymethylcellulose, polyacrylic acids, polyacrylic and methacrylic acids, maleic-acrylic copolymers, ethylene-maleic anhydride copolymers;

25 b) sodium salts of salicylic acid, phthalic acid, terephthalic acid, isophthalic acid, trimellitic acid, pyromellitic acid, sulfosalicylic acid, sulfoisophthalic acid, 2-hydroxy-4-methoxybenzophenone-5-sulfonic acid, 2-hydroxy-3-methoxybenzoic acid, 2-hydroxy-5-methoxybenzoic acid, and 4-hydroxy-3-methoxybenzoic acid.

30 24. A second composition comprising at least one cationic substance.

25. The second composition according to claim 24, wherein said cationic compound is selected from the group consisting of diazo organic compounds, quaternary salts of para-aminodiphenylamine, quaternary salts of para-aminobenzophenone, and their derivatives and mixtures.

5        26. The second composition according to claim 25, wherein said diazo organic compounds are selected from the group consisting of 4-diazodiphenylamine and its derivatives and mixtures.

27. The second composition according to claim 26, wherein the 4-diazodiphenylamine derivatives are selected from the group consisting of:

10        -- derivatives that are monosubstituted in position 3 with a radical selected from the group that consists of methoxy, ethoxy, propoxy and butoxy; and

      -- derivatives that are bisubstituted in positions 3 and 6, in which each substituent is independently selected from the group that consists of  
15 methoxy, ethoxy, propoxy and butoxy.

28. The second composition according to claim 27, wherein said diazo organic compound is selected from the group consisting of 3-methoxydiazodiphenylamine, 3,6-dimethoxydiazodiphenylamine, and 3,6-dibutoxydiazodiphenylamine.

20        29. The second composition according to claim 25, wherein said cationic compound is a monomer, a polymer or a mixture of monomers and polymers.

30. The second composition according to claim 29, wherein said polymer has a base structure defined as (-A-X-B-), where A and B are two  
25 monomers and X is a condensing agent.

31. The second composition according to claim 30, wherein

-- if A and B are identical, said polymer is a homopolymer,

-- if A and B are different, said polymer is a heteropolymer.

32. The second composition according to claim 31, wherein in said  
30 heteropolymers, the monomers A and B are independently selected from the

following groups:

- cationic compound according to claim 30,
- compound, selected from the group consisting of benzophenone, 2,4-dihydroxybenzophenone, 2,3,4-trihydroxybenzophenone, 2,3,4,4'-tetrahydroxybenzophenone, 2,2',4,4'-tetrahydroxybenzophenone, phenylphenol, diphenyl ether, diphenyl methane, dicyclohexyl methane, diphenyl sulfone, diphenyl sulfoxide, diphenyl sulfide and their derivatives and mixtures.

33. The second composition according to claim 30, wherein said  
 10 condensing agent is selected from the group consisting of formic aldehyde, paraformaldehyde, acetic aldehyde, propionic aldehyde, butyric aldehyde, glyoxal, glyoxylic acid, glutaric aldehyde, glutaric dialdehyde, benzoic aldehyde, methoxy hydroxybenzaldehyde, chlorobenzaldehyde, nitrobenzaldehyde, isophthalaldehyde, and mixtures thereof.

15 34. The second composition according to claim 24, further comprising at least one of the substances selected from the group that consists of glycerol, ethylene glycol, propylene glycol, polyethylene glycols, fructose, saccharose, mannitol, xylitol, sorbitol, gluconic acid and their derivatives.

20 35. The second composition according to claim 24, further comprising at least one solvent selected from the group consisting of methyl alcohol, ethyl alcohol, propyl alcohol, isopropyl alcohol, butyl alcohol, dimethylacetamide, dimethylformamide, and their derivatives.

36. A plate system for lithographic printing, comprising:

- 25 a) a plate according to claim 6, said plate being capable of receiving an image to be reproduced,
- b) an image reproduced on said plate with the aid of a second composition according to claim 29 and of an inkjet printing device.